

We Claim:

1. A data communication system with a transmission channel having transmission sub-channels for transmitting and receiving data, said system comprising:

a first terminal for transmission of data on one or more of a first plurality of sub-channels;

a second terminal for transmission of data on one or more of a second plurality of sub-channels wherein the first plurality of sub-channels and the second plurality of sub-channels are partially overlapping such that at least one sub-channel is shared by the first terminal and the second terminal and at least one sub-channel is not shared by the first terminal and the second terminal; and

a control mechanism for allocating data transmission for the first terminal to one or more of the first plurality of sub-channels and allocating data transmission for the second terminal to one or more of the second plurality of sub-channels.

2. A method of data transmission in a communication system with a transmission channel having transmission sub-channels for transmitting and receiving data, said method comprising:

allocating two or more first sub-channels to a first terminal wherein one of the first sub-channels is a first primary sub-channel and another one of the first sub-channels is a first secondary sub-channel;

allocating one or more second sub-channels to a second terminal wherein one of the second sub-channels is the same sub-channel as the first secondary sub-channel and none of the second sub-channels are the same sub-channel as the first primary sub-channel;

determining if the first primary sub-channel is congested;

transmitting the data from or receiving the data at the first terminal on the first primary sub-channel if the first primary sub-channel is not congested;

requesting to send data on the first secondary sub-channel if the first primary sub-channel is congested;

receiving confirmation that the data may be sent on the first secondary sub-channel; and

transmitting the data from or receiving the data at the first terminal on the first secondary sub-channel.